IN THE SPECIFICATION:

Please replace the paragraph noted below for the paragraphs previously presented. Changes are shown with underlining for additions and strike-outs for deletions.

Please replace the existing paragraph ***[0019]*** *with the following new paragraph* ***[0019]****.*

[0019] The fuel injector 100 includes a solenoid 114, which in the illustrated embodiment includes an armature 116, a solenoid coil 115 of conductive wire wrapped around a tubular bobbin 112, and a stationary metallic core described below. The solenoid coil 115 has two ends that are each electrically connected to terminals 123 and is energized by providing current to the terminals 123. The bobbin 112 of the solenoid 114 is a spool on which the conductive coil of the solenoid is wound, and defines a through hole in which the armature 116 of the solenoid 114 is electromagnetically actuated as further described below. The metallic core of the solenoid 114 is defined by multiple metallic pieces of the air assist fuel injector 100. More particularly, in the illustrated embodiment, the metallic core of the solenoid 114 is defined by a cylindrical casing 117, an upper retainer 119, a lower retainer 121, and a body 124, each of which is formed from a metallic material having a relative permeability μ_r such that the flux density though the core is adequate to actuate the armature when the solenoid coil 115 is energized. When the solenoid coil 115 is energized, a magnetic field is generated that flows through the metallic core, i.e., the cylindrical casing 117, the upper retainer 119, the lower retainer 121, and the body 124. As is illustrated in Figure 3, the armature 116 is slightly spaced from the one piece leg/seat 124 by an air gap. Because the metallic core is an excellent magnetic conductor and air is a poor one, when the solenoid coil 115 is energized, the armature 116 is drawn by the magnetic field toward the one piece leg/seat 124 into a position abutting the one piece leg/seat. In this manner, the armature 116 is actuated when the solenoid coil ~~114~~ <u>115</u> is energized. As is described below, the body 124 is a single piece that serves as both the leg and seat for the air assist fuel injector 100. Hence, the body 124 is referred to herein as the "one-piece leg/seat."

Please replace the existing paragraph [0022] with the following new paragraph [0022]:

[0022] The illustrated armature 116 also includes a conduit 126 that receives liquid fuel and gas from a cap 130 and that conveys the mixture of liquid fuel and gas to an inlet 132 of the poppet 118. Hence, in the preferred embodiment, the cap 130 defines an inlet to the air assist fuel injector 100 for the pressurized gas and liquid fuel. The cap 130 serves to direct the liquid fuel and gas to the conduit 126 of the armature 116. The cap 130 includes one fuel passageway 156 having an inlet that primarily receives liquid fuel and four gas passageways 158 each having an inlet that primarily receives pressurized gas. The liquid fuel passageway 156 is located along the center axis of the cap ~~120~~ <u>130</u>, and the gas passageways 158 are circumferentially and equally spaced about the liquid fuel passageway 156. Alternative embodiments of the air assist fuel injector 100 need not include the cap 130~~,~~ and alternative embodiments of the cap 130 may include more or fewer passageways 156, 158. In an alternative embodiment, the conduit 126 of the armature does not extend through the armature. In still a further embodiment, the armature 116 does not include the conduit 126. In this alternative embodiment, liquid fuel flows outside the armature and downstream the air assist fuel injector 100.

Please replace the existing paragraph [0028] with the following paragraph [0028]:

[0028] The spring 120 is located between the armature 116 and the one piece leg/seat 124. More particularly, the spring 120 is located within a recessed bore 152 of the one piece leg/seat 124 that is concentric with and part of the elongated channel 134 of the one piece leg/seat 124. The bore 152 faces the armature 116 and defines the seat for the spring 120. The spring 120 is a compression spring having a first end that abuts the armature 116 and a second end that abuts the one piece leg/seat 124 . The bottom of the bore 152 defines the seat for the downstream end of the spring and a recess in the armature 116 defines a seat for the upstream end of the spring 120. The spring 120 functions to bias the armature 116 away from the one piece leg/seat 124. When the solenoid coil 115 is not energized, the spring 120 biases the armature 116 away from the one piece leg/seat ~~120~~ <u>124</u> and thus the poppet 118 is maintained in

a closed position where the head 138 abuts the impact surface 142 of the one piece leg/seat 124. However, when the solenoid coil 115 is energized, the electromagnetic forces cause the armature 116 to overcome the biasing force of the spring 120 such that the armature 116 moves toward the one piece leg/seat 124 until it abuts a stop surface 154 of the one piece leg/seat 124 . When the solenoid coil ~~114~~ 115 is de-energized, the electromagnetic force is removed and the spring 120 again forces the armature 116 away from the stop surface 154. As will be appreciated, in alternative embodiments of the fuel injector 100, the spring 120 may be located at different positions and still be within the confines of the present invention. For example, in one inwardly-opening embodiment of the fuel injector, the spring 120 is located at the upstream end of the armature and biases the armature toward the one piece leg/seat 124.

*Please replace the existing paragraph **[0029]** with the following paragraph **[0029]**:*

[0029] As is described above, the one piece leg/seat 124 is part of the stationary metallic core of the solenoid 114. That is, the one piece leg/seat 124 is part of the magnetic loop or circuit through which the magnetic field flows when the solenoid coil 115 is energized. Hence, when the solenoid coil 115 is energized, the magnetic field flows through the metallic core defined by the casing 117, the upper retainer 119, the lower retainer 121, and one piece leg/seat 124. Thus, the one piece leg/seat is located relative to the solenoid coil 115 and other portions of the multi-piece core of the solenoid 114 such that it is subject to the lines of magnetic flux generated by the solenoid coil 115. More particularly, in the illustrated embodiment the one piece leg/seat 124 is preferably located partially within the conduit defined by the solenoid 114. As will be appreciated, in an alternative embodiment the one piece leg/seat 124 and/or armature ~~126~~ 116 could be located slightly outside the conduit of the solenoid 114 and still be part of the magnetic core and still be subject to the lines of magnetic flux generated by the solenoid.

Please replace the existing paragraph [0030] with the following paragraph [0030]:

[0030] Because the one piece leg/seat 124 is part of the of the magnetic circuit that is created when the solenoid coil 115 ~~114~~ is energized, is it preferable that it be formed from a metallic material having a relative permeability μ_r that is sufficient to cause activation of the armature when the solenoid coil 115 is energized. The one piece leg/seat 124 is also preferably hard enough to serve as a bearing surface for poppet movement, absorb the impact of the head 138 when the poppet 118 opens and closes, and absorb the impact of the armature 116. Additionally, because the one piece leg/seat 124 typically operates in a corrosive environment, is it preferably fabricated from a corrosion-resistant material. In these respects, it is preferred that the material for the one piece leg seat 124 have a relative permeability μ_r of at least 100, a hardness of at least 80 HRB, and a resistance to corrosion greater than that of 12L14 steel. In even a more preferred embodiment, the material for the one piece leg seat 124 has a relative permeability μ_r of at least 100, a hardness of at least 92 HRB, and resistance to corrosion at least equal to that of AISI 416. Hence, it is preferred that the one piece leg/seat 124 be a magnetic conductor that completes the magnetic circuit generated by the solenoid coil 115, while also being sufficiently hard to absorb impacts of the poppet and the armature at the impact surface without changing the gap between the one piece leg/seat ~~12A~~ 124 and the armature 116 more then 10%, preferably not more than 5%, when measured after 500 million cycles.

Please replace the existing paragraph [0031] with the following paragraph [0031]:

[0031] There are a number of different materials that satisfy the above-noted characteristics of the one piece leg/seat 124, such as hardened AISI 416 stainless steels, hardened AISI 430 stainless steels, and annealed AISI 440 stainless steels. In one embodiment, the one piece leg/seat 124 is a 41600 stainless steel with hardness of 32 HRC. In another embodiment, the one piece leg/seat 124 is a 43020 stainless steel with hardness of 92 HRB. In a further embodiment, the one piece leg/seat 124 is a 44020 stainless steel ~~223 HRB~~.